The Formation of Credibility Impressions of Physicians on Facebook and WebMD:
A Test of Three Theoretical Explanations

Thesis

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Abstract

Computer-mediated communication (CMC) research has long been interested in how interpersonal impressions form online. This research argues that, given the advance of technology and the diversity in online environments, researchers must now consider the context in which social information appears in order to more fully understand the effects of social information on impression formation. This study found, in hypotheses based on correspondent inference theory (Jones & Davis, 1965) and the hyperpersonal model (Walther, 1996), that the context of a website impacts credibility impressions. An original 2 (valence of photograph: casual vs professional) x 2 (normative context: WebMD vs Facebook) experiment examining the impact of moving identical cues across contexts found normative expectations impact impression formation. In particular, this experiment assessed how observers judge a doctor’s credibility and task-attractiveness based on whether they saw a normative or non-normative picture for the context of the website in which they are presented. Findings indicate support for a non-normativity effect: cues that defied normative expectations were more influential. Based on these findings, it is concluded that a non-normativity effect, based on expectations of the type of information for a specific context, drives the other effects.
Dedication

This is dedicated to all of those who have kindly, and sometimes unknowingly, served as my mentor.
Vita

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Whether it is in one’s personal life or professional life, first impressions matter. A first impression provides powerful and lasting judgments (Tetlock, 1983). Today, unlike twenty years ago, people form a great number of first impressions online – whether it occurs through social networking websites (Walther, Van Der Heide, Kim, Westerman, & Tong, 2008), as individuals “friend” each other Facebook (Wang, Moon, Kwon, Evans, & Stephanone, 2010), look for a date on Match.com (Ellison, Heino, & Gibbs, 2006), or purchase goods from an online seller on eBay (Resnick & Zeckhauser, 2002; Reznick, Zeckhauser, Swanson, & Lockwood, 2006). Simply sitting down at a computer opens a portal to meeting many new individuals, in many different contexts, and with many different relational goals in mind. Thus, one’s online presence has an impact on the social judgments that are made about him or her, be it in terms of getting a date, selling a product, or getting a job.

Currently, social information processing theory (SIPT; Walther, 1992) provides an account for how some online judgments are made, suggesting that over time individuals decode social information present in textual communication and form judgments about target individuals. Walther (1993) showed that even in text-based communication, perceivers utilized a wide variety of social information, in order to make personality judgments about an individual. Recent research has
extended SIPT by showing that even in a single exposure to a target’s profile, variations in text and visual presentations can affect an observer’s judgment of a target (Tong, Van Der Heide, Langwell, & Walther, 2008; Utz, 2010; Van Der Heide, D’Angelo, & Schumaker, in press; Walther, Van Der Heide, Kim, Westerman, & Tong, 2008; Walther, Van Der Heide, Hamel, & Shulman, 2009). For instance, research has indicated support of the warranting theory online, finding that a friend-generated cue such as a wall posting on Facebook carries a greater impression weight than a user-generated cue such as a textual self-disclosure (Walther et al., 2008), as well as visual primacy, finding that photographic cues have a strong impact on social orientation judgments (Van Der Heide et al., in press). Thus, the impact of cues in an initial impression judgment is an important line of theoretical development, especially given the pervasive presence of social networking platforms online; a location where numerous impressions are formed every day.

However, further consideration is necessary in how CMC research conceptualizes cues. Van Der Heide et al. (in press) suggest that one important area for future research is the impact that an observer’s expectations about the kinds of cues one should present in a specific online environment can have on an interpersonal impression. Specifically, the authors suggest that experiments should employ experimental designs that juxtapose positive and negative cues, and normative and non-normative cues, in order to separate these related variables. This is suggested, as previous research evaluates cue manipulations within the same website where website norms and expectations dictate the weight of those cues. For Van Der Heide et al. (in press), and Walther et al. (2009) cues were only examined in impression formation
experiments on Facebook, where introverted cues were assumed to be negative, and explained as so in the results. One of the aims of the present study is to expand previous research and evaluate how website context affects impression formation.

Considering website context in impression formation theory is not without exigency. The purpose of social networking websites to connect people to others with similar interests, results in norms and expectations that are unique to that population of users, resulting in a wide variety of contexts in which individuals present themselves to others online (Hargittai, 2008). If SIPT is to be used to evaluate impression formation in social networking environments, it should be able to account for how users of communication technology utilize the online environment for guidance about how to interpret cues in context. This research posits that if cues are to be considered as the basic building blocks of personality judgments online, we need to begin to consider them across the diverse contexts available online. Will a photograph have the same impact on a personality judgment if it is presented on two distinctly different social networking websites? Or, do cues cause the same interpersonal judgments to arise regardless of the context in which those cues are embedded? Specifically, how does a change in context effect cue weight in impression formation? Some impression formation research has noted the presence of negativity effect (Kellerman, 1984; 1989) triggered by expectations of a particular website (Walther et al., 2009; Van Der Heide et al., in press), but could a positivity effect exist as well? If so, will non-normative positive cues lead to more positive judgments? These are the questions that this research seeks to answer.
Why Context Matters

This research defines context as everything on a website that stays the same from user to user. This includes a variety of aspects ranging from the color scheme, information layout, and page heading, to the types of other users associated with the page and the information that others typically put on their personal pages. For example, on a social networking website an individual can often change the pictorial presentation and textual self-disclosures, but cannot change the background of or location within the page that they are placed. While color schemes and photographs may sometimes be changed on some platforms, virtual architecture remains consistent on most popular networking websites (Facebook, LinkedIn, etc.) Each of these elements contribute to a website’s contextual frame.

However, it is not only within websites that communicative actions take place in a distinct and set context; face to face communication behaviors are guided by the setting in which we act. For example, Barker (1968, 1978, 1987, 1990) argued that most ordinary behavior is directed by the environmental setting in which the behavior takes place; specific spatial areas bound by walls and doors automatically and unconsciously channels individuals to the normative expected action. Just as office settings imply different types of behavior (Duffy, 1997), people entering a library or even thinking about a library become aware of the normative expectations of silence (Aaarts & Dijksterhuis, 2003). Even individuals joining a line act in certain predictable ways with an expected degree of civility and justice (Mann, 1969, 1970; Milgram, Liberty, Toledo, & Wackenhut, 1986). Thus, It is plausible to assume that if
someone is expected to behave in different ways when sitting in their living room, at work, or at the library, individuals might be expected to act in different ways when interacting on a gaming website, on LinkedIn, or on a fitness forum.

Further, it is noteworthy that the importance of considering context in communication research has often been emphasized. One subset of research where this theme often comes through is in health communication. Researchers have argued the need to consider the differences in how we apply and develop theories about HIV communication in different contexts and cultures (Airhihenbuwa & Obregon, 2000), that research on interpreters in the hospital must consider the various social and institutional contexts that they operate in (Hsieh, 2006, p. 722), and even that the operationalization of patient-centered communication needs to better consider context (Epstein et al., 2005). On the latter point, authors write that “complexities [of communication] are in part related to the way in which context influences the expression of PCC behaviors. For example, sharing information with patients is patient-centered behavior, but its value may depend on context” (Epstein et al., 2005, pg. 1516). Patient-centered communication is one of the foundational ideas in communication training for physicians, yet even its value varies by context. Regardless of the communicative effort, the attempt to create shared meaning is always influenced by context. And as Rashers and Babrow (1996) noted a decade and a half ago “Given the recognition of the importance of context(s), it might be fruitful to reconsider the views of communication and the nature of the social world that undergrid much of the analysis” (pg. 248). As such, one possible way to begin
moving health communication to consider context is by looking simply at how the context the doctor information is presented in affects credibility judgment.

Though the above literature consider context in the larger sociocultural sense of the term, perhaps a sensible place to begin this exploration is with different contexts online. Both the connection to ecological psychology noted above, as well as works in CMC virtual reality and education (Blascovich & Bailenson, 2011; Gee, 2007), indicate that the immersive qualities of computer mediated communication are similar to that of being immersed in different contexts in grounded reality. Thus, this research, more than anything, concerns a theoretically systematic examination of the effect of context. And this is something that health communication, and communication research itself, often notes the need for.

A website’s contextual frame often implies assumptions and expectations for users’ behavior, just as real life settings do. Just as there is an ostensible, but perhaps unspoken, goal for individuals who enter a library or enter a queue, websites also contain such goals. A dating website has a different goal or purpose for the setting than Facebook or LinkedIn, all of which have a different purpose than, for example, a body-building social networking community such as Bodyspace.com. These different contexts for online communication can lead to assumptions about the type of behavior that is expected or appropriate. For example, if one places a picture of their beloved Labradoodle on their Match.com profile, this picture is likely to be noticed by those who are making judgments about this individual, for better or worse. To perceivers, it might be a key factor in the type of impression they form. However, on the dating
website for pet-lovers like datemypet.com, a profile picture containing a dog may not be evaluated with such close scrutiny, for here, it is expected. The context in which we interpret social cues directs our attention to what we believe tells most about a personality – that which is non-normative.

The above point is highlighted by correspondent inference theory (Jones & Davis, 1965). Correspondent inference theory argues that when one evaluates another person, that person bases his or her evaluation less heavily on normative information, because normative information could be explained either situationally or dispositionally. For example, if it were very common on Facebook for a university student to self-disclose that one liked to party, an observer may be less inclined to form an impression that the person was a party animal because the self-disclosure does not differentiate the target from other targets in the population. However, if one uses their Facebook profile as a signifier of their anti-social tendencies, the profile will likely produce stronger social orientation judgments (Van Der Heide et al., in press). A non-normative cue is more likely to influence an attribution because it presents information about a target that is distinctive. This distinctive, non-normative cue should be judged by an observer to be less likely a product of the social norms in an online environment and more likely to arise because of the actual disposition of a target. Thus, according to correspondent inference theory, observers should rely most heavily on non-normative cues to judge an individual’s characteristics. The theory stipulates that non-normative cues are more valuable because they represent an individual’s unique personality, rather than the simple acts of conformity to a
situation. Put simply, it is when a person does not conform to the norm, that we are more likely to evaluate the evidence as indicative of their actual personality (Jones & Davis, 1965).

If web-context affects impression judgments as argued above, context may be especially important consideration in CMC. Presently, there are many social networks, with their own unique set of social norms and expectations. Different websites have different goals and different users. boyd and Ellison (2008) suggest that different communities may alter the way that people make social judgments with the same social information: “while their key technological features are fairly consistent, the cultures that emerge around social networking sites are varied” (p. 210). Thus, in different online communities, it is plausible that as expectations for what online behaviors are normative change from site to site, personality judgments based on the same cues in different contexts will differ. Therefore, correspondence inference theory can be a helpful lens through which to view cues.

Evidence of the effects of correspondent inference theory in impression formation has already been indicated in one particular manner already: website context can work to highlight cues that are non-normative and negative. For example, Walther and D’Addario (2001), Dindia and Huber (2009), Walther et al. (2009) and Van Der Heide et al. (in press) found evidence of Kellerman’s (1984, 1989) negativity effect in impression formation online. The negativity effect (Kellerman, 1984, 1989) suggests that because positive and complimentary statements are expected, and negative statements are not expected, negative statements about an
individual are weighed more heavily in the evaluation of that individual. The findings from these studies make the idea of negativity in the impression formation process an interesting and important aspect to explore further. Consistent empirical evidence of the negativity effect cited in impression formation literature suggest a theoretical exigency for the current investigation; if the reason for the negativity effect is better understood, insight can be gained into how impression formation works at a more basic level. Isolating the negativity effect and understanding the process can help establish basic foundations in how individuals process cues in the current online environment. Attending to these complex findings, this research hopes to understand negativity by making the argument that the assumptions of context and non-normativity of behavior ultimately underlie the negativity effect.

Walther et al. (2009) found empirical evidence of both the warranting effect and the negativity effect when looking at evaluations of a target Facebook profile’s extraversion. In this case, the warranting hypothesis suggested that observers would base their judgment of a target’s extraversion more strongly on friend’s statements about the target because those statements are more costly to manipulate by the profile owner, than are self-statements (Walther & Parks, 2002). A negativity hypothesis predicted that a target profile’s level of extroversion is based on negative statements – in this case those that suggest introversion. Overall, the results of this study indicated that both negativity and warranting affected perceptions of a target profile’s extroversion. Consistent with the negativity hypothesis, the results indicated that a target, whose profile was populated introverted-self statements and extraverted friend
statements, was judged to be a less extraverted than an individual with extraverted self-statements and introverted friend’s statements. As such, there is evidence that introverted cues overrode extraverted cues in impression formation even when extraversion cues are other-generated; judgment then is driven by the negativity effect in addition to the warranting effect.

Van Der Heide et al. (in press) sought to understand the effects of different types of cues—photographic and text-based extraversion cues—in impression formation. Van Der Heide et al. also found evidence of two interconnected theoretical effects: visual primacy and negativity. It was found that photographic perceivers’ judgments of a target’s social orientation are greatest when a verbal cue and a photographic cue depict extraversion, are significantly lower when a photographic cue depicts extraversion but a verbal cue depicts introversion, are lower still when a photographic cue depicts introversion but a verbal cue depicts extraversion, and are lowest when both verbal and photographic cues depict introversion. The important finding for negativity theory here comes as we see that there is a drop between the second and third categories above – if no hybrid negativity-visual primacy effect were present, there should be no difference when photographic cue depicts extraversion but a verbal cue depicts introversion, and when a photographic cue depicts introversion but a verbal cue depicts extraversion. Again, impression formation findings were consistent with a variation on a visual primacy hypothesis that gives preference to negatively valenced information. Thus, it follows that the negativity effect is, at a descriptive level, omnipresent in impression formation—it
appears as a foundational effect that influences other findings. However, the process that leads to this effect has yet to be examined.

It is interesting that the negativity effect appears to affect other findings in impression formation research: While other-generated cues and pictorial cues matter more than user-generated and textual cues for impression formation in some conditions, when cues are negative they more strongly influence impression judgments. Thus, by further considering the negativity effect we gain insight into a process that significantly effects impression formation. But why is the negativity effect so persistent in impression formation? Drawing on Jones and Davis’s (1965) correspondence inference theory, this study posits that the context, which gives rise to specific presentational norms in which these judgments are made, is a critical factor that has not yet been addressed in the literature.

While the assumed effect of context has been noted in hypotheses and results, the effect of website context on cue has not yet been systematically evaluated. In both previously mentioned studies it is assumed that individuals will assess introverted cues as negative, as Facebook is a social network. By definition, people engage in activity on social networks with a social focus--their main behavior on the website is to construct their profile and view “their list of connections and those made by others within the system” (boyd and Ellison, 2008, pg. 211). Thus, when someone engages in a social activity, yet provides cues suggesting they do not value social activity, it is understood as unusual or deviant, and therefore negative. It follows, then, that in order for an introverted cue to be seen as negative, the website platform itself must
first provide the expectations of extraversion, or these expectations must be arrived at from experience viewing others on the website. The context of a website seems to play a role in how individuals process cues online, at least when that cue is deemed to negatively violate normative expectations.

**Hypothesizing Positivity, Negativity, and Non-normativity Effects**

If the impact of context is as powerful as some research suggests, then a simple change of cue type should be able to produce not only a negativity effect, but also a positivity effect as predicted by correspondent inference theory. Correspondent inference theory (Jones & Davis, 1965), an attribution theory at heart, explains how individuals as perceivers, attribute or explain the actions of others. A foundational assumption of this theory is that as perceivers, we believe that “actions are informative to the extent that they have emerged out of a context of choice and reflect selection among plural alternatives” (p. 83). The key contribution of this theory for impression formation comes from how it considers distinctive social information: the distinctiveness of an action, or the intensity at which a behavioral cue comes to the perceiver, is based on the “extent to which they do not represent stereotypic cultural variation” (pg. 83). Put simply, the greater the difference between the expected cue, the normative cue for the context, the stronger the dispositional attribution for behavior. This theory has served as the basis for the negativity effect, which, as indicated above, has been empirically identified both online and off. Drawing on correspondence inference theory (Jones and Davis, 1965), this research posits the
possibility of a positivity effect, and a conditional non-normativity effect in impression formation.

The basic theoretical assumption is a simple one: The context of a situation is foundational for how we attribute actions. For example, when one views a doctor wearing a white coat and stethoscope in a doctor’s office, one might judge him to be a credible individual. Such a judgment would not necessarily be different from any other doctor in the office, for it is a context where the professionalism of appropriate dress is expected. Each doctor, dressed in a white coat and stethoscope at work, is likely to be judged equally credible, assuming all other factors are equal as well.

However, if one were to come across a doctor in another situation, say out to lunch, at a lecture, and he was still wearing their white coat and stethoscope, it is likely that they would stand out. Take for instance, a situation not entirely fictional: a group of medical students are listening to a series of short lectures from faculty members. After hearing a number of doctors speak, all of whom have taken off their white coat and stethoscope appearing only in their business casual attire typically worn under white coats, a doctor comes to speak who is still wearing their white coat, and has a stethoscope around their neck. According to correspondence inference theory, personality judgments about this final doctor should differ in this situation. Here, it is possible this doctor might be judged as even more credible and a greater expert than the doctors in the office: this doctor maintains a professional appearance, as if he has just come from the clinic and is ready to return, even when it is not absolutely necessary. Some may assume he works longer, harder hours, and has just come from
straight from work: his top priority. Yes, a doctor wearing a white coat in their office is a professional. But, a doctor who wears their white coat throughout the evening – that person must really be an expert! While it is also plausible that this may lead to judgments of ego or bravado, and perhaps even lesser social attractiveness, their dress is a positive, non-normative, credibility cue when it comes to impressions of credibility and task attractiveness.

However, assumptions about appropriate behavior derived from context can work in two ways. The similar situations should also be able to trigger a negativity effect. Say, for instance, an individual is walking through a medical office full of doctors in white coats, only to run into a doctor in casual clothing. It is likely that this individual will judge this doctor as less credible or less professional. It is even possible that this theory may explain attributions based on contexts that are socially constructed. Take the example from above and reverse it: what if a group of medical students listened to a series of lectures from faculty presenters, all dressed in white coats. Then, the last lecturer came to the podium in a t-shirt and jeans. According to this theory, and assuming that observers had no special knowledge about this final speaker, it is plausible that this final doctor will be judged to be less professional and credible.

If correspondent inference and context have the same impact in real life as online, these same judgments should hold online. Jones and Davis (1965) might suggest that a website’s context will act just as a real life context; it assumes that individuals have a choice of how to present social information on a website. When
individuals then present information in a manner that is not expected in the situation, this information creates a stronger dispositional attribution. For example, it is now quite plausible that individuals could be friends with their doctors online, and might even research possible doctors for looking for them on Facebook as well as WebMD. Here, one might judge all doctor profiles on WebMD with an equal level of credibility and expertise. However, if an individual is surfing profiles on Facebook, where causal pictures are normative, and then comes across a professional picture of a doctor wearing a white coat and tie, this individual might deem the final doctor as even more credible. In this situation, the social information available is positive and unexpected – a doctor who retains professionalism even in a casual context. According to correspondence inference, a perceiver will deem this doctor as even more professional than those who are only acting according to the norms of their contexts. Henceforth, in this situation there is what might be considered a positive non-normative cue, and the creation of a positivity effect.

There is other literature that might also suggest the existence of a positivity effect in an online setting. Walther’s (1996) hyperpersonal model identifies four media affordance phenomena that may enhance relational CMC. CMC provides selective self-presentation, idealization of partners, exploitation of technical attributes to enhance message composition, mutually enhancing feedback mechanisms that facilitate particularly intimate encounters through text-based interaction. Thus, according to this model, a perceiver might realize that the owner of their target profile has taken advantage of the affordances of CMC – they have taken the time necessary
to provide a non-normative and positive cue, which indicates selective presentation. In accordance with the model, this might incorporate an effect of idealization of this individual’s target profile they are viewing: a possible positivity effect. Here, it is also is fascinating to consider the notion that that while the positivity effect can be derived from Walther’s (1996) hyperpersonal model, as discussed earlier, most impression formation research in CMC has, thus far, pointed only to a negativity effect, (Walther et al., 2009, Van Der Heide et al., in press). Furthermore, as Van Der Heide et al. (in press) suggest, a positivity effect could not have occurred in their research or most other previous work because valence and non-normativity have traditionally been confounded. That is, positive information about a target is typically only normative and negative information is typically only non-normative. In this research, manipulating cues across different contexts separates these variables. Thus, it is possible to test a positivity effect:

H1: Perceivers’ judgments of a target’s a) competence, b) trustworthiness, c) goodwill/caring, and d) task attraction, are greatest for profiles displaying a professional picture on Facebook, and are significantly lower for a profiles with a professional pictures on WebMD, a casual picture on Facebook, and a casual picture on WebMD.

However, the same cues may be able to produce a negativity effect. For instance, continuing the line of reasoning from correspondent interference, if an individual views a series of doctor profiles on WebMD with professional pictures, and then come across a doctor profile with a casual picture, is plausible that the
doctor with the casual photo on WebMD will be judged as less credible, and with less professionalism and expertise. Here, the professional picture will be normative for the context, while the casual picture will be judged as both non-normative, and negative, leading to lower judgments of professionalism and credibility.

Furthermore, as described above, the effects of negativity theory (Kellerman, 1983; 1989), have been identified in impression formation literature, as discussed earlier. Thus, in accordance with correspondent inference theory (Jones & Davis, 1965) and negativity (Kellerman, 1983; 1989), the following hypothesis is posited:

H2: Perceivers’ judgments of a target’s a) competence, b) trustworthiness, c) goodwill/caring, and d) task attraction, are lowest for profiles displaying a casual picture on WebMD, and are significantly higher for profiles displaying a professional picture on Facebook, a professional picture on WebMD, or a casual picture on Facebook.

Finally, because it is plausible that both a positivity effect and a negativity effect can be created simply by switching the context that cues are placed in, the underlying cause of the positivity and negativity effect must be considered. As such, rather than having an either / or scenario for effects, they might operate at the time: that is, a non-normativity effect may supercede and drive both positivity and negativity findings. Theoretically, though correspondence inference (Jones & Davis, 1965) theory predicts negativity and positivity, the strongest prediction might be for a non-normativity effect. This is arguable the foundational assumption of this attribution theory is that contextual expectations drive attribution – normative
assumptions can be broken positively and negatively in any given context, but alone these effects do not best explain impression formation. Rather, driving these individual effects are the normative expectations of any given website context. Thus, a final hypothesis of the effects of normative expectations posits:

H3: Perceivers’ judgments of a target’s a) competence, b) trustworthiness, c) goodwill/caring, and d) task attraction are greatest with a professional picture on Facebook, are significantly lower for a professional picture on WebMD, or a casual picture is placed on Facebook, and are lowest when a casual profile picture is placed on WebMD.

In addition to serving to explore theoretical predications of impression formation online, there is often practical exigency. These measures are apt as they provide a gestalt judgment of credibility: they are often qualities that individuals consider when searching for a doctor online. With so much information available online, it is not uncommon for individuals to “google” their potential doctors and came across profiles such as this. It also follows that a consumer doing such searching would perhaps be concerned with cues of their potential doctor’s competence, or rather focus on how caring their potential primary care provider appears to be. Furthermore, this is a step often taken before actually visiting the doctor, just as many currently research products or services online before purchasing them. It is also then appropriate to make predictions of impression formation using theory that that is most appropriate for judgments based on first impressions. To understand how different types of presentation online affect these judgments would
be quite beneficial for doctors trying to control, or manipulate, their virtual impression.

Method

Participants and Design

Participants (N = 253) were undergraduate communication students at a large public university in the Midwest. Participants received course credit for participation in the study. Upon entering the study, participants were randomly assigned to one of four experimental conditions. In these four conditions stimuli reflected differences in the mode of website context (WebMD vs. Facebook) and the nature of the photographic cue (profession picture vs. casual picture). As such, the study was a 2 by 2 between-subjects experimental design.

Procedure

This experiment was conducted via an online questionnaire, in which the user accessed different profiles in a predetermined sequence based on their randomized condition. As the central hypotheses in this experiment lie in a perceiver’s understanding of what the normative expectations in a situation are, the questionnaire sequence was developed to establish the normative expectations of the website are established early in the experiment. While it is possible that participants will innately understand the normative expectations, the experiment took steps in order to strengthen these normative expectations. Thus, order to establish normative expectations of the websites, users viewed and answered survey questions for 4 mock
profiles, before viewing the experimental profile. These profiles provided what users would typically expect in a social network surfing type situation – casual photographs on Facebook and professional photographs on WebMD. (Users saw either WebMD contexts, or Facebook contexts, not both.) Upon reaching the fifth and final profile, users viewed the actual experimental profile representing one of the four experimental conditions described above.

Furthermore, in an attempt to reduce error and enhance the generalizability of results, each experimental condition had two possible pictures from two different doctor models. There was no effect of the doctor model on the dependent variables being considered. Thus, these conditions were collapsed into the previously mentioned 2 x 2 between subjects design. All profiles viewed, experimental or norm inducing, were of female doctors with equally valenced professional information (see stimuli section below.)

**Stimuli**

Two different website contexts were utilized in this study. The first website context is WebMD. In particular, this website has pages for the doctor experts, upon which they can place a picture and a short biographical statement. WebMD is a popular website that people can go to in order to find information about health related issues, and has a large population of doctors whose profiles are provided on the website typically with professional pictures. As such, the presentation of a normative cue on this profile was a doctor with a white coat and stethoscope. Here, a casual photograph was deemed as non-normative. The second website context utilized was
Facebook. Facebook is a less specialized website, but is also often used by a wide range of individuals. As such, it is not uncommon for individuals to find their doctor on Facebook (MacDonald et al., 2010). However, at the same time, it is not normative for a doctor’s personal Facebook page to contain a professional picture of himself or herself. Regardless of expectations, Facebook does conveniently allow for the same cues as the WebMD profile page, a picture and an “about me” section. Here, the casual photograph was normative, while the professional photograph was non-normative and positive. For all conditions, textual self-disclosures provided the exact same information about medical background and experiences. The doctors were all listed as cardiologists from a private hospital located in a region of the country distant from the location of the study to ensure that participants would not have any preconceptions of the specific private hospital. Additionally, the text provided as the doctor bio was developed with assistance from a focus group of three doctors, in order for each bio to be without error in medical terminology and equally valenced, as determined by the focus group. Furthermore, this same focus group found agreement with the experimental designed, noting that they would expect to see, and do see, professional pictures of their peers on WebMD and casual picture so their peers on Facebook.

The stimuli themselves, only differed in website context and profile picture. The professional profile picture showed a female doctor in her late 40’s to early 50’s wearing a white coat, a stethoscope, and smiling against a white background. The casual picture showed this same doctor sitting on the couch and smiling. All other
personal information remained consistent. Additionally, all website advertising will be removed from website context display, and only elements characteristic of the context – website banners and formal navigation tools will remain to create context (see Appendices A-H).

**Dependent Measures**

The first three dependent measures of interest for this study were McCroskey & Teven’s (1999) measures of source credibility: competence, caring/goodwill and trustworthiness. This scale consisted of 18 seven-point semantic differential questions. Competence factor questions asked the perceiver to rate their target as more “Intelligent” or more “Unintelligent.” Caring/Goodwill factor questions asked the perceiver choose whether they believe the user “Has my interests at heart” or “Doesn’t have my interests at heart.” The trustworthiness factor questions asked the perceiver to judge whether the target was more “Honest” or “Dishonest.” The \textit{alpha} reliabilities of these measures were .93 for competence, .88 for caring/goodwill, and .93 for trust.

The fourth dependent measure of interest was McCroskey & McCain’s (1974) measure of task-attraction. This scale consisted of 6 seven-point Likert scale questions. Task attraction questions asked the perceiver to agree or disagree to statements about the target profile such as: “You can count on him/her to get the job done” and “I have confidence in his/her ability to get the job done.” Items such as “He/she is a typical goof-of when assigned to a job” were reverse coded. The \textit{alpha} reliability for task attraction was .89.
Results

Hypothesis 1 predicted that a profile that highlight a doctor’s professional standing by presentation of a non-normative professional picture, (a professional picture on Facebook,) would be judged higher than profiles that present doctors with a casual or professional picture established as normative, in judgments of a) competence, b) trustworthiness, c) goodwill/caring, and d) task attraction.

Theoretically, this predicted the existence of a non-normative cue that is positively judged. A planned contrast analysis was conducted (see Table 1 for contrast analysis weights for all hypotheses) to assess this positivity effect. This contrast analysis assessing cell means was significant, for a) competence ($t_{[249]} = 3.17, p < .01, \eta^2 = .04$), b) trustworthiness ($t_{[249]} = 2.56, p = .01, \eta^2 = .04$), and d) task attraction ($t_{[249]} = 2.35, p = .02, \eta^2 = .02$), but not for c) caring/goodwill. Following the suggestion of Keppel and Wickens (2004), an analysis of the residual explained variance was conducted in order to determine if this set of contrast weights adequately described the effect of the study manipulations on the dependent variable. This analysis showed that there was still a significant amount of variance that was not accounted for by the planned contrast weights suggested by Hypothesis 1, in all measures: a) competence ($F_{[2, 191]} = 8.13, p < .01$), b) trustworthiness ($F_{[2, 191]} = 5.93, p < .01$), c) caring/goodwill ($F_{[2, 191]} = 6.17, p < .01$), and d) task attraction ($F_{[2, 191]} = 5.37, p < .01$). This suggests that while the contrast weights hypothesized here are consistent with the pattern that was observed, the findings for this pattern of means do not definitively rule out alternative explanations. Thus, while there was
some support for Hypothesis 1 and the positivity effect, further analysis suggest that there may be better theoretical predictions that supercede the positivity explanation.

Hypothesis 2 predicted that when judging profiles of doctors in the context of WebMD, the profiles that presents a non-normative casual picture, would be judged lower than profiles that present doctors with a professional picture or with a normative casual picture, in judgments of a) competence, b) trustworthiness, c) goodwill/caring, and d) task attraction. A planned contrast analysis was conducted to assess this negativity hypothesis. The planned contrast analysis was significant for all measures: a) competence \( (t \[249\] = 4.779, p < .01, \eta^2 = .08) \), b) trustworthiness \( (t \[249\] = 3.22, p < .01, \eta^2 = .04) \), c) caring/goodwill \( (t \[249\] = 2.81, p < .01, \eta^2 = .03) \), and d) task attraction \( (t \[249\] = 3.88, p < .01, \eta^2 = .06) \). Further, an analysis of the residual explained variance suggested that this set of planned contrasts more adequately described the overall explained variance present in the model, than the first set of hypotheses. After accounting for the variance described by the hypothesized effect, little variance in the dependent variable remained for two of the four dependent variables: a) competence \( (F \[2, 191\] = 1.74, p = .18) \) and d) task attraction \( (F \[2, 191\] = .58, p = .56) \). However, this was not the case for all dependent variables: and b) trustworthiness \( (F \[2, 191\] = 3.09, p = .05) \) and c) caring/goodwill \( (F \[2, 191\] = 3.17, p < .05) \) indicated otherwise. This suggested that there was mixed support for the theoretically predicted pattern of means in Hypothesis 2.

Hypothesis 3 predicted that Perceivers’ judgments of a target’s a) competence, b) trustworthiness, c) goodwill/caring, and d) task attraction greatest with a
professional picture on Facebook, are significantly lower with a professional picture on WebMD, are lower still when a casual picture is placed on Facebook, and are lowest when a casual picture is placed on WebMD. As with the other hypotheses, a planned contrast analysis was conducted to assess this non-normativity hypothesis.

The planned contrast analysis was significant for all measures: a) competence ($t[249] = 4.87, p < .01, \eta^2 = .09$), b) trustworthiness ($t[249] = 3.27, p < .01, \eta^2 = .05$), c) caring/goodwill ($t[249] = 2.55, p = .01, \eta^2 = .03$) and d) task attraction ($t[249] = 3.82, p < .01, \eta^2 = .06$). Further, an analysis of the residual explained variance suggested that this set of planned contrasts adequately described almost all of the overall explained variance present in the model. After accounting for the variance described by the hypothesized effect, little variance in the dependent variable remained in all but one measure. Little residual explained variance remained for a) competence ($F[2, 191] = 1.31, p = .27$), b) trustworthiness ($F[2, 191] = 2.85, p = .06$), and d) task attraction ($F[2, 191] = .80, p = .44$). The only dependent measure that the contrast did not provide adequate explanation for was c) caring/goodwill ($F[2, 191] = 3.808, p < .01$). Thus, support for Hypothesis 3 was strong.

**Discussion**

Understanding contextual expectations is key to understanding how individuals interpret behavior. Jones and Davis (1965) long ago suggested that context forms a basis for judging personality cues of others; this study indicates that this is true even when these judgments are formed through the use of new technologies. While an individual positivity effect does exist, it is not an adequate
predictor and is superceded by a non-normativity effect. Additionally, consistent with Kellerman (1984, 1989), the negativity effect persists over just what we would predict from a positivity explanation. However, the strongest explanation for data comes from a non-normativity effect: cues that defy normative explanations hold greater cue weights. The non-normativity effect thus drives the negativity effect and positivity effect. Moreover, this effect completely accounted for the observed positivity effect and partially accounted for the observed negativity effect.

The work here reaches this conclusion through a series of small steps forward in both theory and methodology. First and foremost, it presents a theoretical separation of non-normativity and negativity. Prior work has often lumped these notions together mainly due to findings that introverted cues on Facebook impact impressions of social orientation in a strong manner (Van Der Heide et al., in press; Walther et al., 2009), or due to the large impact of negative messages or emoticons on textual communication (Dindia & Huber, 2009; Walther & D’Addario, 2001). This work represents a forward direction in this area of theoretical development by taking two key steps. First, in this experiment steps were taken to enhance contextual expectations. Prior work has postulated that for Facebook introverted is non-normative and negative because it is a social platform: social cues are expected. Here, experimental design was developed to establish, or ideally, to enhance the expected norms. Thus, the judgment of normalcy was not an assumption to the same degree as previous research. Second, after establishing contextual expectations, the experiment used these expectations to present that cues can be both non-normative and positive,
and non-normative and negative, simply by the manipulation of a single cue within different contexts. As such, these findings present a fascinating picture of how personality cues work within an online context. This research suggests that contextual expectations do have a significant effect on how cues are interpreted. The effect can be witnessed in evidence of the negativity effect, (non-normative negative cues capture greater attention than other cues,) and the positivity effect, (non-normative positive cues capture greater attention than normative cues.) However, each of these effects are just extensions of a broader phenomenon. Underlying these effects is the normativity effect: cue weight is moderated by contextual expectations, in that those cues that are not normative or unexpected in a particular setting, lead to more extreme judgments of social orientation. Also, it is noteworthy that, the Negativity Effect received more empirical support than the Positivity Effect. It seems that negative cues drive this effect more than positive cues. This may explain some of the earlier use of the negativity theory in explaining findings in impression formation.

Although the positivity effect received the least empirical support of the three proposed theoretical effects, the discovery that a positive non-normative cue that is judged higher than other cues within a particular context is an important finding. The discovery of a positivity effect is consistent with Walther’s (1996) proposed idealization of partners in CMC. The participants in this study rated doctors more highly when they presented non-normative and positive presentations compared to when those same positive self-presentations were normative. As such, this indicates the possibility of selective presentation and exploitation of technical attributes in the
sense that you can present cues that are seen as out of the ordinary in a positive manner. In fact, this may explain the prevalence of the negativity effect in prior research: because individuals are able to selectively present their social information online, more often than not individuals attempt to present positive cues. Thus, fewer cues come across as so positive that they are in fact non-normative and positive, while at the same time, even slightly negative cues are noticed more. It is possible that CMC and the hyperpersonal model itself explain the affordances that lead to the non-normativity effect, and a negativity effect that is more abundant that a postivity effect.

Such knowledge has interesting practical results. For instance, in this study of physicians on Facebook and WebMD, we see extremely similar judgments of doctors presenting professional cues on Facebook and on WebMD. While WebMD, to most, might seem as a more credible website, in some measures doctors on Facebook are rated slightly higher (see Table 1). This is an interesting finding when it comes to considering how credibility might work online. Perhaps, as some research suggests, it is not the the context of a website or web design features that drives credibility ratings (see Metzger et al., 2003 for review), but rather the degree of normatively for social information placed within a certain type of context. The hyperpersonal model (Walther, 1996) suggests that individuals have selective self-presentation in CMC. This research suggests that perhaps keen knowledge of normative website expectations, along with selective self-presentation, can be utilized by communicators to draw more attention to yourself, for better or worse. There are distinct implications
of these findings, especially for those currently looking for dates online. At the least, there is evidence that physicians can present a Facebook page judged to be as credible as a WebMD page.

In giving thought to this aspect of the research, there is one noteworthy aspect of the results to consider. There may be some explanation as to why the measure of caring/goodwill received the least amount of support, if considered with respect to the impression formation process in this context. It is plausible that when analyzing caring or goodwill in a profile presentation, Facebook perhaps actually indicated a degree of approachability or possible friendship, (even if electronic,) that lead to greater ratings of goodwill. The casual nature of this platform lead to higher ratings that were not significantly different from WebMD. In fact, this result is not that atypical: much research has found that the measure of caring and goodwill does not find significant differences in source credibility rankings, while the other two measures of trustworthiness or competence do (Westerman et al., 2010; Westerman et al., 2011; Van Der Heide & Walther, 2009). From a practical perspective, this also indicates that Facebook may in fact be a good platform for presentation if a physician is mainly concerned with how caring they come across as in a first impression.

Another important contribution of this research becomes evident in applying these findings to social information processing theory (Walther, 1992). Social information processing theory suggests that people adapt to a computer environment and use social information in place of non-verbal cues utilized in face-to-face interaction, in a way that allows CMC to reach the same level of relational
development and similar accuracy concerning social judgments as face-to-face communication, just over a longer period of time. Communicators actively “seek and exploit whatever cues they can when motivated to develop interpersonal impressions and relations online” (Walther, 2010, p. 497). Walther (1992) denies the stagnate vision of cues for non-verbal communication, and rather cues as information packets from which people make judgments about other individuals – the types of judgments that they would make if the individual were socially or physically present. While this model is insightful, it was developed when CMC was primarily only text-based and thus conceptualizes CMC accordingly: early CMC work was uni-contextual, as the environments it explored did not often produce expectations or normative behavior that were systematically variant. However, in today’s online environment, relationships are not only developed over time and over E-mail, but can happen quickly in a first impression, often on a social networking website, where a tremendous amount of personal information is present. In a sense, online communication has grown to represent a unique environment, or a number of unique environments. By understanding cues not as context-independent, but rather as context-moderated, SIPT becomes more accurate in its explanation and prediction of how we perceive others online.

The growth of SIPT to consider context is an important theoretical step, for the issue of context is often a critique of social science. Generalizing findings can be troubling, as “the social meaning of communicative events generally, and nonverbal behaviors specifically, is shaped by, and thus dependent on, a variety of social
contexts in which they are invariably situated” (Robinson & Stivers, 2001, pg. 291).

Few social scientific theories have considered the effects of context. This is so troubling that Flyvbjerg (2001) even suggests that the inability to produce context-independent theory indicates that social science must not try to shape itself after natural science, that it is doomed to failure in such an effort. However, this is not the case in all instances. Communication research may be unique in its ability to consider context in theoretical development. This becomes evident as Carey (1988) writes:

“There is truth in Marshal McLuhan’s assertion that the one thing of which the fish is unaware is water, the very medium that forms its ambience and supports its existence. Similarly, communication, through language and other forms, comprises the ambiance of human experience” (p. 24). Communication research is in a unique perspective to consider context, precisely because the context is socially constructed by communication. This work, in its consideration of context, represents a small step toward a larger goal. By developing a theoretical framework in which to consider context, more generalizable theory is produced. This research suggests that there are perhaps ways in which to systematically account for context in theory.

**Limitations and Future Directions**

As in all research, there are a few limitations to this study. One limitation in this experiment is that the design was not fully crossed. Specifically, there were no conditions in which the positivity effect was seen in WebMD or the negativity effect in Facebook. However, this was done with specific reasoning. The normative expectation on WebMD is to see professional pictures, and the normative expectation
on Facebook is to see casual pictures. Thus, in the experimental procedure the method attempted to utilize and strengthen these contextual expectations, in order to test what happens when they are violated. In order to fully cross the design, the procedure would have to induce norms of casualness on WebMD and professionalism on Facebook, that might be going against already established normative expectations. Thus, it was decided to try to avoid a possibly artificial set-up. Furthermore, the results suggested that these norms were accurately in pace: there was no significant difference in competence and task attraction measures between Facebook profiles with a casual picture and WebMD profiles with a professional picture. Put another way, in the judgments of physician competence and judgments of whether you would want a physician conducting a task on your behalf, perceivers saw no difference between doctors on Facebook and WebMD so long as they profile was viewed as similar to others in the same context. Though a fully designed experiment might have been advantageous, it is perhaps an unnecessary and artificial step.

While this research tried to avoid artificiality, one aspect of the stimuli may have not succeed in this area. The Facebook profiles, while appearing just as they would online to an individual exploring the web for this information, had text composed in the third person. This was done because some professional individuals do present their information on Facebook in this manner, and more importantly it helped keep cues consistent between Facebook and WebMD, as WebMD always contains bios in the third person. However, even a third person bio did have an effect on those judging profiles on Facebook, it would likely to be positive in terms of
credibility across the board. As such, this limitation might have only lead to a facebook context that was judged as slightly more credible in all conditions. In response, this might have lead to any impression differences between Facebook and WebMD becoming a bit harder to find evidence for.

Continuing on the above points, though the experimental design worked to further establish normative expectations, a step that other research has not taken, the expectations that were established were assumptions based on inductive reasoning and focus group discussions, and normative expectations were not tested, themselves. Thus, though these theoretical findings are representative of a complex design with a focus on contextual expectations, the findings are still built on assumptions of normality. Future research would benefit from working to establish methods to test normative expectations for website contexts.

Finally, it cannot be overlooked that this is research on website context, but within a larger context. Specifically, the sample of participants for this study are undergraduate students. Will these findings remain the same for a sample where the relationship between cue presenter and perceiver is different? For example, will a group of Doctors look at these presentations of social cues and contexts differently? Will a closer relationship between presenter and perceiver lead to the interpretation of non-normative social cues and situational rather than dispositional? Understanding aspects of a context that vary, such as the degree of connection, and that might effect other theoretical findings, are steps that need to be taken to build a systematic and predictable understand of context. Future research in CMC should work towards even
broader aspects of context to produce stronger, more generalizable, theory. Research in CMC, research in communication, and research in the social sciences in general will benefit greatly when it identifies how context can systematically be accounted for.
Table 1  
*Planned Contrast Analysis Weights, Means, and Standard Deviations*

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<th>WebMD Casual (n = 56)</th>
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<td>(4.50)</td>
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References


psychology (pp. 219-266). New York: Academic Press.


Utz, S. (2010). Show me your friends and I will tell you what type of person you are: How one's profile, number of friends, and type of friends influence impression formation on social network sites. *Journal of Computer-Mediated Communication, 15*, 314-335.


communication. Paper presented at the annual meeting of the National Communication Association in San Francisco, CA.
Appendix A: Facebook Casual (Model Condition Beth)

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<td>Beth M. Hill, MD, is a practicing cardiologist and medical researcher at Emory University Hospital. Currently, her interest is in extending the findings of randomized controlled trials of coronary artery disease treatment (efficacy) to the general application of these treatments in the overall population (effectiveness).</td>
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Appendix B: WebMD Casual (Model Condition Beth)
Appendix C: Facebook Professional (Model Condition Beth)

Beth Hill
Works at Emory University Hospital

Education and Work
Employers
Emory University Hospital

Basic Information
About Beth
Beth M. Hill, MD, is a practicing cardiologist and medical researcher at Emory University Hospital. Currently, her interest is in extending the findings of randomized controlled trials of coronary artery disease treatment efficacy to the general application of these treatments in the overall population (efficacy).

Sex
Female
Appendix D: WebMD Professional (Model Condition Beth)

![WebMD Heart Disease Community](image)

Beth M. Hill, MD, is a practicing cardiologist and medical researcher at Emory University Hospital. Currently, her interest is in extending the findings of randomized controlled trials of coronary artery disease treatment efficacy to the general application of these treatments in the overall population (efficacy).
Appendix E: Facebook Professional (Model Condition Cheryl)

Cheryl Schwartz

Works at Emory University Hospital

Education and Work

Employers

Emory University Hospital

Basic Information

About Cheryl: Cheryl L. Schwartz, MD, is a practicing cardiologist and medical researcher at Emory University Hospital. She is primarily interested in the effects of age and development on cardiac electrical stability. The electrical properties of the myocardium continue to develop and mature after birth. These changes may affect susceptibility to malignant arrhythmias at different ages. She is currently investigating these changes at the tissue level in collaboration with faculty in Biomedical Engineering, Mathematics, and Physics.

Sex: Female
Appendix F: WebMD Professional (Model Condition Cheryl)

Cheryl L Schwartz

Profile:
Cheryl L. Schwartz, MD, is a practicing cardiologist and medical researcher at Emory University Hospital. She is primarily interested in the effects of age and development on cardiac electrical stability. The electrical properties of the heart continue to develop and mature after birth. These changes may affect susceptibility to malignant arrhythmias at different ages. She is currently investigating these changes at the tissue level in collaboration with faculty in Biomedical Engineering, Mathematics, and Physics.
Appendix G: Facebook Casual (Model Condition Cheryl)
Appendix H: WebMD Casual (Model Condition Cheryl)

Cheryl L. Schwartz, MD, is a practicing cardiologist and medical researcher at Emory University Hospital. She is primarily interested in the effects of age and development on cardiac electrical stability. The electrical properties of the myocardium continue to develop and mature after birth. These changes may affect susceptibility to malignant arrhythmias at different ages. She is currently investigating these changes at the tissue level in collaboration with faculty in Biomedical Engineering, Mathematics, and Physics.